Deaths by lung cancer linked to Houston air

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Deaths from lung cancer are strikingly higher in the sectors of metropolitan Houston with the heaviest air pollution, a noted cancer epidemiologist reported Saturday.

Prof. Eleanor J. Macdonald, chief epidemiologist for the M. D. Anderson Hospital and Tumor Institute, said the profile of Houston's high-risk areas for lung cancer emerged from a massive study of all city deaths during a 30-year period.

Her department's study showed high mortality rates from lung cancer in neighborhoods near the Houston Ship Channel and the central city.

Surprisingly, the city's highest death rate from lung cancer was found in Spring Branch and the city's northwest quadrant, between the Katy Freeway and Ella Boulevard.

The annual mortality rate there during the years 1965-69 was 46.1 lung cancer deaths per 100,000 population, even though the residents' median age — 23.9 years — is one of the youngest in the

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city. Lung cancer is more common in the elderly.

Macdonald pointed out that the mortality rate in the northwest area shot up sharply in 10 years. During the 1955-59 period, there were only 27.8 lung cancer deaths per 100,000 people.

She also pointed out that in recent years, there has been a large influx of heavy industry into the area.

The average U.S. mortality rate from lung cancer during 1955, as estimated by the American Cancer Society, was 33 deaths per 100,000 population.

In the Memorial area, between the Katy Freeway and Westheimer, the death rate was 31.4 during 1965-69, and in River Oaks it was an even lower 29.

But it was 41.9 deaths in the central city and Heights area, and 42.2 in neighborhoods on both sides of the upper Ship Channel.

Macdonald said the death-rate variations in different section of Houston were statistically "enormous." She added that heart-disease mortality was also generally high in the same sections with abnormal lung cancer deaths.

"I have no doubt that air pollution is involved," said the nationally known cancer epidemiologist.

"There isn't any question that some extraneous factor accounts for these differences, and I think it must be air pollution."

She said the study figures took into account the length of residence in a neighborhood and the variations in median age, income and racial composition in the different city areas.

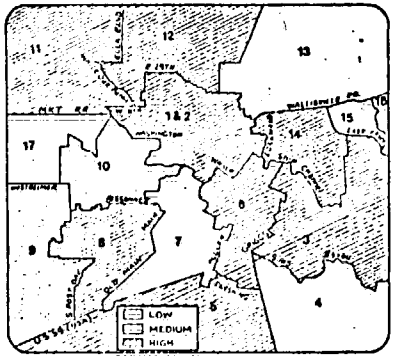
The landmark study, begun in 1966 with the cooperation of the city statistical office, appears to provide the firmest evidence yet found that Houston air pollution can be a killer.

Researchers coded, catalogued and correlated 235,000 deaths in Houston from all causes during the 1940-70 study period. For the earlier years, they had to check thousands of original death certificates to assemble the data for computer analysis.

The study showed that Houston death rates for most major diseases either held steady or declined during the 30-year period, Macdonald said.

But lung cancer deaths have climbed.

She said the lung cancer-air pollution phase of the study was limited mainly to the five-year 1965-69 period because [illegible] on Houston air pollution levels before that time.



Map charts pollution divisions for study

Macdonald, neither a chemist or pathologist, declined to speculate on what specific air pollutants might be responsible for the excessive lung cancer deaths in some parts of Houston.

"I don't want to be pontifical because I don't know," she said. "What I'm trying to point out is that there are differences, and let's see what we can find out and do about them."

She said she is now compiling data on the different types of industry in the city's different sections, and how long they have been in operation.

"I think a very careful study should be made, not only of air pollutants but of any other factors that may be causing the differences (in death rates) around the city," she said.

The epidemiologist said low income (which could result in poor food and inadequate medical care) and advanced [illegible] are two key factors in the lung cancer hot spots.

She pointed out that one study area, south of the downtown area out to Holmes Road and roughly lying between Main and Cullen, has a comparatively low median income and high median age.

Yet it had a moderate lung-cancer death rate of 35.6 per 100,000.

Surprisingly, the area west of Main around Bellaire has one of the city's higher lung-cancer mortality rates, 41.6 per 100,000.

MacDonald said far higher lung cancer deaths among men, compared to women in the same areas, could indicate greater exposure of men to pollution at their jobs, or while going to and from work.

For the study, the researchers grouped the city's standard census tracts into 17 regions, with each region surrounding one of the city's 17 air pollution sampling stations.

Here is a breakdown of the median age, median income and lung cancer death rate (LCDR) in each of the 17 regions, as shown on the accompanying map:

Region 1 — combined with Region 2.

Region 2 — age, 28.5; income, $6,399; LCDR, 41.9.

Region 3 — age, 28.5; income, $9,604; LCDR, 42.7.

Region 4 — age, 24.5; income, $12,123; LCDR, 34.2.

Region 5 — age, 22.9; income, $10,154; LCDR, 42.6.

Region 6 — age, 28.6; income, $7,350; LCDR, 45.5.

Region 7 — age, 30.5; income, $7,660; LCDR, 35.6.

Region 8 — age, 31.6; income, $12,222; LCDR, 35.6.

Region 9 — age, 23.6; income, $14,865; LCDR, 30.2.

Region 10 — age, 31.6; income, $13,996; LCDR, 29.5.

Region 11 — age, 23.5; income, $11,045; LCDR, 41.2.

Region 12 — age, 21.3; income, $9,673; LCDR, 41.6.

Region 13 — age, 22; income, $5,787; LCDR, 34.

Region 14 — age, 23.6; income (missing); LCDR, 42.2.

Region 15 and 16 — age, 23.9, income, $10,358; LCDR, 26.3.

Region 17 — age, 30; income, $19,196; LCDR, 31.4.

Macdonald said the Tobacco Research Council provided a $40,000 grant to pay for four extra researchers to compile data from city statistical files over a four-year period. She said the no-strings grant was paid to and disbursed by the city.

She said the results of the study, which she plans to publish soon in two scientific journals, show no discernible correlation between cigarette smoking and lung cancer deaths in the different sec-

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Source: https://www.industrydocuments.ucsf.edu/docs/qxll0000